



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/683,002	11/07/2001	Jozef Herman Peter Bastiaens	08CN07467-1	5002

23413 7590 05/10/2004

CANTOR COLBURN, LLP
55 GRIFFIN ROAD SOUTH
BLOOMFIELD, CT 06002

EXAMINER

LEE, RIP A

ART UNIT	PAPER NUMBER
----------	--------------

1713

DATE MAILED: 05/10/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 09/683,002	Applicant(s) BASTIAENS ET AL.	
	Examiner Rip A. Lee	Art Unit 1713	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE ____ MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1,2,5-13 and 23-33 is/are pending in the application.
 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1,2,5-13 and 23-33 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____. |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date ____. | 6) <input type="checkbox"/> Other: ____. |

DETAILED ACTION

This office action follows a request for continued examination (RCE) under 37 § C.F.R. 1.114, filed on February 28, 2004. Applicants have amended claims 1, 7-13, 16, 18, 21, 24-26, and 30-33. New claims 34 and 35 were added. Claims 1, 2, 5-13, 16-21, and 23-33 are pending.

Claim Rejections - 35 USC § 112

1. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

2. Claims 1, 21, 25, 26, and 31 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claims contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventors, at the time the application was filed, had possession of the claimed invention. The claims have been amended to exclude akylene-alkyl(meth)acrylate copolymer and ethylene-alpha-olefin copolymer constitutes new matter because such a limitation was does not appear in the specification as originally filed.[†] In fact, page 13 of the specification, paragraph [0039] allows for use of alkyl (meth)acrylates as impact modifier.

[†] Any negative limitation or exclusionary proviso must have basis in the original disclosure. *Ex parte Graselli*, 231 USPQ 393 (BPAI 1983), see also MPEP § 2173.05(j).

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

5. Claims 1, 2, 6, 7, 10, 16, 17, 19, 20, 21, 23, and 26-35 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 6,221,283 to Dharmarajan *et al.* in view of U.S. Patent No. 4,011,200 to Yonemitsu *et al.*

Dharmarajan *et al.* teaches a conductive thermoplastic composition comprised of 38.6 wt % of polyphenylene ether, about 33 wt % of polyamide, 10.2 wt % of a combination of SE/BS and SE/P copolymers as impact modifier, 6-8 wt % of electrically conductive carbon fibrils, and 0.3-0.7 wt % of maleic anhydride (see Examples, col. 7). Such a composition is devoid of akylene-(meth)acrylate copolymer or ethylene-alpha-olefin copolymer. Use of a copolymer of 2,6-dimethylphenol and 2,3,6-trimethylphenol is not shown in the example, but is clearly

Art Unit: 1713

suggested in claim 2 of the patent. However, the constitution of such a copolymer is not disclosed.

Copolymers of this type are well known in the art. The patent of Yonemitsu *et al.* teaches that PPE copolymers based on 2,6-dimethylphenol containing 2-50 wt % of 2,3,6-trimethyl-1,4-phenylene units display excellent heat resistance and superior mechanical strength compared with homopolymer derived from 2,6-dimethylphenol (claim 1, discussion col. 5-6). Furthermore, the resulting copolymer is well suited for use in making molded articles (col. 6, lines 31-48). In view of the teachings of both references, one having skill in the art would have found it obvious to use a PPE copolymer containing 2-50 wt % of 2,3,6-trimethyl-1,4-phenylene units (as per Yonemitsu *et al.*) for the copolymer described in Dharmarajan *et al.* The combination, and hence the composition of claim 1, is obvious because use of such a copolymer is contemplated in the primary reference. As such, one would expect such a combination to work.

Dharmarajan *et al.* also teaches use of a blend of nylon 6 and nylon 6,6 as the polyamide resin, indicating that a limited amount of nylon 6 is to be used in order to maximize heat resistance of the blend (col. 3, lines 11-14). The intrinsic viscosity of the polyphenylene ether must lie in the range of 0.20-0.60 dL/g (25 °C, CHCl₃) (col. 3, line 3). Compositions of the invention have specific volume resistivity of less than 10^5 Ω-cm (col. 4, line 54). In addition to carbon fibrils, use of Ketjen black is also suggested (col. 4, line 44). Other compatibilizing agents include citric acid, fumaric acid, and malic acid (claim 12). Miscellaneous additives such as stabilizer appear in the compositions of the prior art. The skilled artisan thus would have

Art Unit: 1713

found it obvious to arrive at the subject matter of the dependent claims simply by following the teachings of the prior art.

The compositions of present claims 21, 26, 31, 32, and 33, obvious variants of the composition of the parent claim, are also obvious in light of the disclosure of Dharmarajan *et al.* Method claim 30 recites that the composition is prepared by melt blending, and this process is also obvious in view of the fact that the compositions are also made by melt blending (col. 4, line 27). One of ordinary skill in the art would have found it obvious to prepare such compounds by melt blending processes as well. Alternatively, one having ordinary skill in the art would have found it obvious to pre-disperse conductive filler into the polyamide phase so as to make a concentrate, as per claim 23, because such a step is taught in col. 4, lines 30-33. That the composition can be made into automobile quarter panels is obvious in light of the disclosure in col. 6, line 17.

6. Claims 5, 11-13, 24, and 25 are rejected under 35 U.S.C. 103(a) as being unpatentable over Dharmarajan *et al.* in view of Yonemitsu *et al.*, and further in view of U.S. 2001/0031831 to Miyoshi *et al.*

The discussion of the disclosures of the prior art of Dharmarajan *et al.* from paragraph 5 of this office action is incorporated here by reference. Although the inventors claim the use of a mixture of nylon 6 and nylon 6,6, there is no teaching of the amount of each component in such a mixture. The inventors merely state that limited amount of nylon 6 is to be used in order to maximize heat resistance of the blend (col. 3, lines 11-14).

The prior art of Miyoshi *et al.* also relates to conductive thermoplastic PE/polyamide compositions comprising SE/BS and SE/P impact modifier. And like Dharmarajan *et al.*, the compositions may be comprised of a mixture of nylon resins. Example 5 (Table 1) reveals use of a combination of 11.8 wt % of nylon 6 and 35.5 wt % of nylon-6,6 in making a composition having sufficient volume resistivity. Since this practical amount has been shown to work effectively, one having ordinary skill would have found it obvious to use the same quantity in order to arrive at the subject matter of present claims 5, 24, and 25. The combination is obvious because a mixed nylon resin is suggested in both prior art and because both relate to the same field of endeavor. As to claims 11-13, Miyoshi *et al.* teaches use of metal filler, (*i.e.*, aluminum flake, nickel flake, copper fiber, brass fiber), metal coated filler (*i.e.*, nickel coated mica), and non-metal filler (*i.e.*, ceramic fiber) (paragraphs [0066] and [0067]). Absent any showing of criticality in using these alternative filler, it is maintained that a routineer in the art would have found it obvious to use the fillers described in Miyoshi *et al.* in a PPE/polyamide composition in order to confer conductive properties, and the artisan would have expected such an embodiment to work.

7. Claims 8 and 9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Dharmarajan *et al.* in view of Yonemitsu *et al.* and further in view of U.S. Patent No. 6,528,572 to Patel *et al.*

Neither Dharmarajan *et al.* nor Yonemitsu *et al.* teaches the use of vapor grown carbon fibers or carbon nanotubes. However, these materials are alternate forms of carbon, and their use as conductive filler is well known in the art, as shown in Patel *et al.* (see discussion in col. 3, lines 6-52). Since vapor grown carbon fibers or carbon nanotubes are functionally equivalent to carbon black with respect to imparting conductivity to resin, and absent any showing of criticality for their specific use, one having skill in the art would find it obvious to use these filler with a reasonable expectation of success in preparing a conductive polymer composition.

8. Claim 18 is rejected under 35 U.S.C. 103(a) as being unpatentable over Dharmarajan *et al.* in view of Yonemitsu *et al.* and further in view of U.S. Patent No. 6,277,907 to Gelbin.

Although use of antioxidants and stabilizers is contemplated, neither prior art discloses use of pentaerythritol *tetrakis*(3-laurylthiopropionate). Compared with conventional antioxidants, this material is well suited as a stabilizer in thermoplastic resins that contain carbon black. Gelbin discusses the loss of utility of stabilizer in the presence of carbon black (col. 5) and shows that pentaerythritol *tetrakis*(3-laurylthiopropionate) in an amount of about 0.6 wt % is useful in stabilizing thermoplastics such as polyphenylenoxides (claims 1 and 21, examples 16, 36, and 40). Based on these teachings, one having skill in the art would find it obvious to use this compound as stabilizer in the compositions of Miyoshi *et al.* with the reasonable expectation that the stabilizer would not lose its effect in the presence of carbon black.

The following rejections were set forth in previous office actions, and they need not be reproduced here. In view of the fact that there is no support in the specification for exclusion of akylene-alkyl(meth)acrylate copolymer and ethylene-alpha-olefin copolymer, the rejections have not been withdrawn.

9. Claims 1, 2, 5-7, 10-13, 16, 17, 19-21, and 24-30 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. 2001/0031831 to Miyoshi *et al.* in view of U.S. Patent No. 4,011,200 to Yonemitsu *et al.*

10. Claims 8 and 9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Miyoshi *et al.* in view of Yonemitsu *et al.* and further in view of U.S. Patent No. 6,528,572 to Patel *et al.*

11. Claim 18 is rejected under 35 U.S.C. 103(a) as being unpatentable Miyoshi *et al.* in view of Yonemitsu *et al.* and further in view of U.S. Patent No. 6, 277,907 to Gelbin.

12. Claim 23 is rejected under 35 U.S.C. 103(a) as being unpatentable over Miyoshi *et al.* in view of Yonemitsu *et al.* and further in view of U.S. Patent No. 6,221,283 to Dharmarajan *et al.*

13. Claims 1, 2, 6, 7, 10, 16, 17, 19, 21, 26, 27, 29, and 30 are rejected under 35 U.S.C. 103(a) as being unpatentable over EP 0 924 261 to Koevoets *et al.* in view of Yonemitsu *et al.*

Art Unit: 1713

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Rip A. Lee whose telephone number is (571)272-1104. The examiner can be reached on Monday through Friday from 9:00 AM - 5:00 PM. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Wu, can be reached at (571)272-1114. The fax phone number for the organization where this application or proceeding is assigned is (703)872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <<http://pair-direct.uspto.gov>>. Should you have questions on the access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll free).

ral

May 3, 2004



DAVID W. WU

SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 1700